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Centralized MAAP API: Simplifying Algorithm Collaboration

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Multi Mission Algorithm and Analytics Platform

- Establishing an analysis collaboration framework to share data, science algorithms and compute resources in order to foster and accelerate scientific research conducted by NASA and ESA scientists.
- Decoupling algorithm development, cataloging, and deployment onto a large-scale processing data system.
- Providing interfaces for developers to develop, version and share processing algorithms as well as data products.
- Utilizing the algorithms for generating MAAP standard products and Analysis-Ready Datasets (ARDs) for fast analysis.
- Enabling on-demand analysis to be performed on the ARDs using multiple analytic frameworks.

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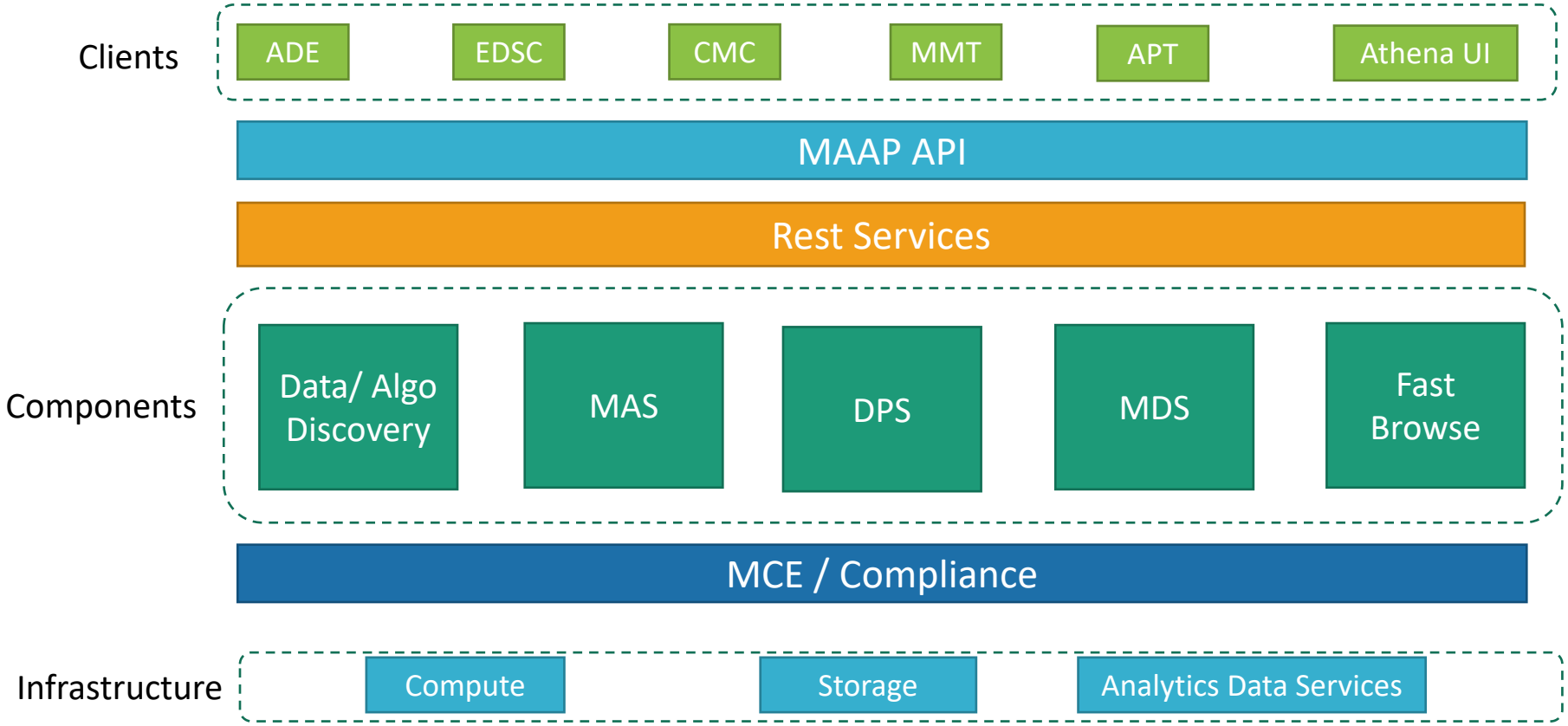
MAAP Subsystems Overview



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MAAP API Endpoints

- Authentication
- Data Catalog / Discovery
- MAAP Data Store (MDS)
- MAAP Algorithm Store (MAS)
- Algorithm Development Environment (ADE)
- Data Processing System (DPS)
- Fast Browse
- Data Analysis

MAAP API Endpoints

- **Authentication**
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- Register
- Verify
- Login
- Authorize

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- Find collections
- Collection by ID
- Find granule
- Granule by ID
- Add new collection / granule
- Remove collection / granule by ID

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- Upload Granule
- Remove Granule
- Download Granule
- Granule by ID
- Get Capabilities

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- List Algorithms
- Get Algorithm Information
- Register Algorithms
- De-register Algorithm

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- Find Repositories
- Find workspaces
- Get workspace information
- Remove workspace
- Load workspace into Eclipse CHE
- Save workspace
- Build workspace to container

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- Search Jobs in DPS
- Describe a job
- Queue job from algorithm in MAS with inputs
- Get Job Info by ID
- Get Result of Job

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Static Tiles
- Get Capabiliies
- Get Feature Info
- Get Tile

On the fly Map/Tiles
- Get Capabilities
- Get Map

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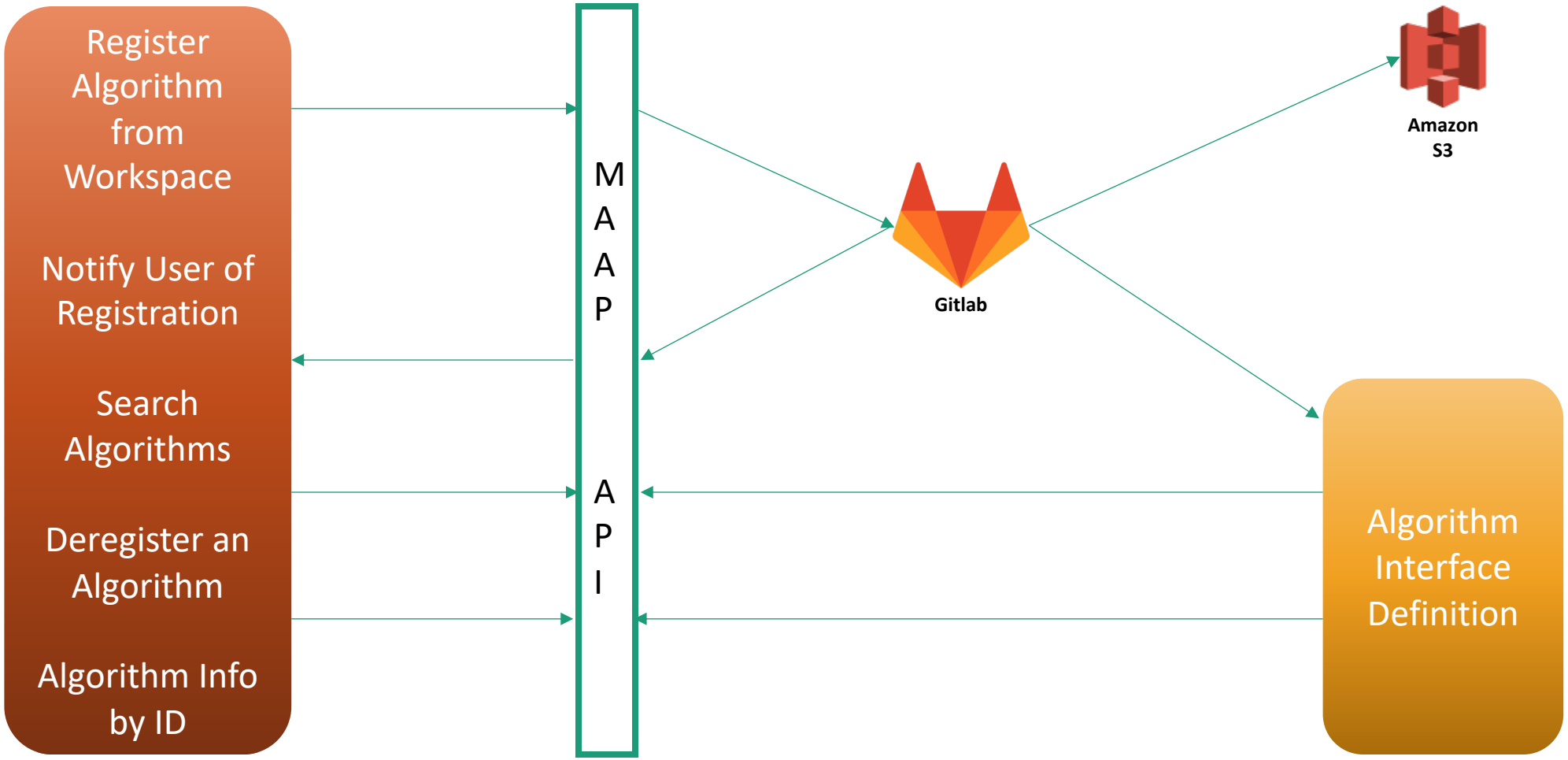
Potential functions:
- Share Data to group
- Run ARD generation and present visualization

Algorithm Registration

ADE



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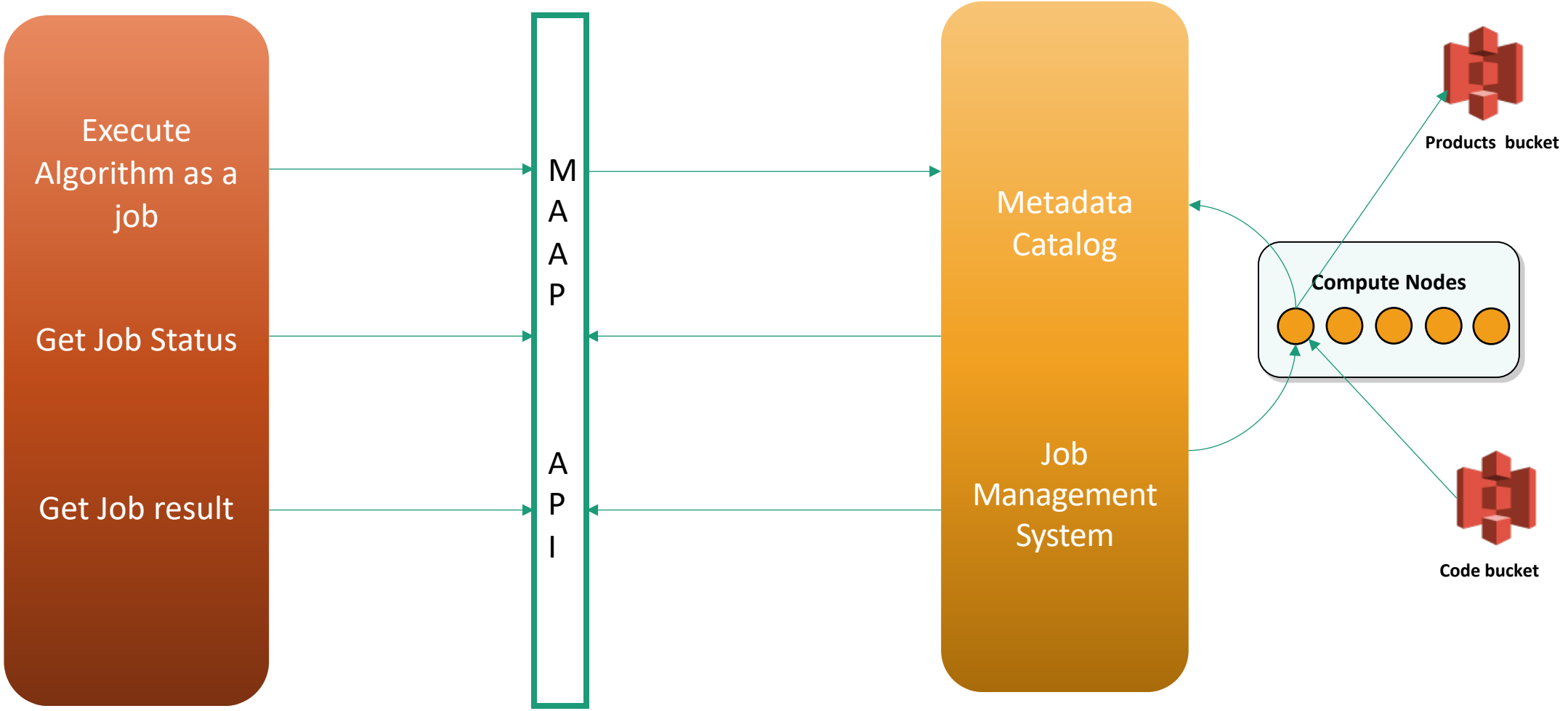
Job Submission



Challenges

- Authentication and Authorization
- Using JupyterLab plugins with Eclipse CHE
- We want a the concept of algorithm registration and algorithm code to be decoupled where as the default design of algorithm development in DPS comingles the two (registration of job and building code container in same step).
- For existing DPS endpoints finding the best fit WPS operation
- Making responses OGC compliant

Extra Slides

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Component Architecture View